

Claim Amendments

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claims 1-6. (Canceled)

Claim 7. (New) A process for producing light olefins, comprising:
catalytically cracking a hydrocarbon feed in the presence of a crystalline
aluminosilicate zeolite catalyst carrying a rare earth element in an amount ranging from 0.4 to
20 relative to the aluminum of the zeolite on an atomic ratio basis in a reactor which permits
continuous regeneration of the catalyst and which is of a fluidized bed type, a moving bed
type, or a transfer line reaction type under reaction conditions involving a reaction
temperature ranging from 500 to 700° C, a reaction pressure ranging from 50 to 500 kPa, a
steam to hydrocarbon mass ratio ranging from 0.01 to 2, a catalyst to hydrocarbon mass ratio
ranging from 15 to 50, and a contact time ranging from 0.1 to 10 seconds.

Claim 8. (New) The process for producing light olefins as defined in claim 7,
wherein the rare earth element is at least one member selected from the group consisting of
lanthanum, cerium, praseodymium, neodymium, samarium, gadolinium, and dysprosium.

Claim 9. (New) The process for producing light olefins as defined in claim 7,
wherein the rare earth element is carried in an amount ranging from 0.6 to 5 relative to
aluminum of the zeolite on an atomic ratio basis.

Claim 10. (New) The process for producing light olefins as defined in claim 9, wherein the rare earth element is carried in an amount ranging from 1 to 3 relative to aluminum of the zeolite on an atomic ratio basis.

Claim 11. (New) The process for producing light olefins as defined in claim 7, wherein the zeolite has a SiO₂/Al₂O₃ molar ratio ranging from 25 to 800.

Claim 12. (New) The process for producing light olefins as defined in claim 11, wherein the zeolite has a SiO₂/Al₂O₃ molar ratio ranging from 40 to 600.

Claim 13. (New) The process for producing light olefins as defined in claim 7, wherein the steam to hydrocarbon mass ratio ranges from 0.1 to 1.

Claim 14. (New) The process for producing light olefins as defined in claim 13, wherein the steam to hydrocarbon mass ratio ranges from 0.2 to 0.5.

Claim 15. (New) The process for producing light olefins as defined in claim 7, wherein the contact time ranges from 0.5 to 5 seconds.

Claim 16. (New) The process for producing light olefins as defined in claim 7, wherein the hydrocarbon feed comprises a paraffin having from 2 to 30 carbon atoms.

Claim 17. (New) The process for producing light olefins as defined in claim 16, wherein the hydrocarbon feed is ethane, propane, butane, pentane, hexane or a naphtha or gas oil fraction.

Claim 18. (New) The process for producing light olefins as defined in claim 7,
High silica content zeolite is ZSM-5 or ZSM-11.